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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/495,897	02/02/2000	Masahiko Saito	29273/521	5434

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KENYON & KENYON
1500 K STREET, N.W., SUITE 700
WASHINGTON, DC 20005

EXAMINER

TANG, KENNETH

ART UNIT

PAPER NUMBER

2127

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/495,897

Applicant(s)

SAITO ET AL.

Examiner

Kenneth Tang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/19/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the Amendment filed on 7/22/04. Applicant's arguments have been fully considered but are now moot in view of the new grounds of rejections.
2. Claims 1-16 are presented for examination.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 8/19/04 was filed after the mailing date of the first office action on 4/22/04. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-5 and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umeno et al. (hereinafter Umeno) (US 5,392,409) in view of Collins et al. (hereinafter Collins) (US 6,157,989).**
5. As to claim 1, Umeno teaches a computer comprising:

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- a memory for storing a plurality of operating systems and a plurality of processes or threads to be performed by each of said operating systems (*see Abstract*); and
- a processor for executing said operating systems in accordance with priorities assigned to said processes or threads (*col. 9, lines 14-15 and lines 38-68*);
- wherein the processor retrieves the priorities of processes or threads to be performed by any one of said operating systems, translates the retrieved priorities into priorities of said plurality of operating systems, selects the operating system to be executed in accordance with the priorities resulting from the translation, and executes the selected operating system (*col. 9, lines 14-15 and lines 38-68, col. 11, lines 46-53, see Fig. 14*).

6. Umeno fails to explicitly teach the translating involve changing into normalized priorities in a range in common. However, Collins teaches a real-time multiprocessor data processing system that dynamically normalizes priority values based on the shared memory associated with each processor of the system (*col. 2, lines 43-67*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of the translating involve changing into normalized priorities in a range in common to the existing system of Umeno because this optimizes allocation of task switching in addition to a more efficient load balancing (*col2, lines 55-58 and col. 7, lines 52-56*).

7. As to claim 2, Umeno teaches a computer wherein said memory comprises a priority translation table in which to map into the common priorities the priorities of the processes or threads to be performed by said operating systems, and wherein said processor selects the

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operating system to be executed on the basis of said priority translation table (*col. 9, lines 14-15 and lines 38-68, col. 11, lines 46-53, see Fig. 14*).

8. As to claim 3, Umeno teaches a computer wherein said processor determines priorities specific to each of said plurality of operating systems on the basis of the priorities common to said operating systems, thereby changing the priorities of said plurality of processes or threads to be performed by each of said operating systems (*col. 13, lines 62-68*).

9. As to claim 4, Umeno teaches a computer wherein said memory comprises a priority reverse translation table in which to map said common priorities into the priorities specific to each of said operating systems, and wherein said processor changes the priorities of said plurality of processes or threads on the basis of said priority reverse translation table (*col. 9, lines 14-15 and lines 38-68, col. 11, lines 46-53*). Data in the translation table can be accessed and also modified (bi-directional).

10. As to claim 5, Umeno teaches a computer wherein, if a process or a thread is designated for execution, said processor elevates the priority of the operating system in charge of carrying out the designated process or thread, the processor further lowering the priority of the operating system in question when said designated process or thread is terminated in execution (*col. 13, lines 62-68*).

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11. As to claim 8, Umeno teaches an operating system execution wherein said priority translating step, in translating priorities specific to each of said operating systems into common priorities, translates the priorities of different operating systems into common priorities that differ between said different operating systems (*see Abstract*).

12. As to claim 9, Umeno teaches an operating system execution method wherein said priority translating step, besides translating priorities of processes or threads to be performed by each of said operating systems into the common priorities, translates at least an interrupt handling state, a self-processing state of any operating system, and an idle state into common priorities (*col. 25, claim 3*).

13. As to claim 10, it is rejected for the same reasons as stated in the rejection of claim 10. In addition, Umeno does teach running one of a plurality of operating systems based on priority (see rejection of claim 10) but fails to explicitly teach switching. However, it would be obvious to one of ordinary skill in the art that switching would occur when a different operating system of the group is picked based on a new higher priority.

14. As to claim 11, it is rejected for the same reasons as stated in the rejection of claim 3.

15. As to claim 12, it is rejected for the same reasons as stated in the rejection of claim 4.

16. As to claim 13, it is rejected for the same reasons as stated in the rejection of claim 9.

17. As to claims 14-16, they are rejected for the same reasons as stated in the rejection of claim 5.

18. **Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umeno et al. (hereinafter Umeno) (US 5,392,409) in view of Collins et al. (hereinafter Collins) (US 6,157,989), and further in view of Zolnowsky (US 5,826,081).**

19. *Zolnowsky was disclosed in the IDS filed on 8/19/04.*

20. As to claim 6, it is rejected for the same reasons as stated in the rejection of claim 1. However, Umeno fails to explicitly teach notification of a priority. Zolnowsky teaches notification of a priority (*col. 4, lines 4-15, col. 9, lines 16-26*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the feature of notifying of a priority to the existing system because this increases scheduling capabilities and a response can be made from that notification of priority (*col. 4, lines 4-15, col. 9, lines 16-26*). Furthermore, Umeno in view of Collins teaches having a common priority but fails to explicitly teach preferentially executing the operating system having a higher priority. Zolnowsky teaches selecting a highest priority runnable thread in the system because this has the advantage of preventing race conditions and minimizing lock contention while assuring that high-priority threads are dispatched as quickly as possible (*see Abstract*). It would have been obvious to one

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of ordinary skill in the art at the time the invention was made to include the feature of preferentially executing the operating system having a higher priority to the existing system of Umeno in order to gain the advantages described above.

21. As to claim 7, it is rejected for the same reasons as stated in the rejection of claim 6.

Response to Arguments

22. Applicant's arguments have been fully considered but are now moot in view of the new grounds of rejections.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt
10/13/04


MENG-AI T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100